



# Global Faculty Initiative

**The Faculty Initiative  
seeks to promote the integration  
of Christian faith and academic disciplines  
by bringing theologians into conversation with scholars  
across the spectrum of faculties  
in research universities  
worldwide.**

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Disciplinary Note

## **VIRTUES IN SCIENCE: RESEARCH SUPERVISION AND COLLABORATION**

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“Social practices, institutions, and communities can be conducive, or not, to developing and sustaining the virtues” Jennifer Herdt

Beyond intellectual virtues or skills that give the capacity for the attainment of knowledge, there are some obvious moral virtues for scientists as they relate to their data, to the community of fellow practitioners, and to funders and community stakeholders.

Honesty and integrity in the collection and interpretation of data, perseverance in the face of failures, impartiality in the reviewing and evaluation of the work of other scientists in as yet unpublished manuscripts, declaring any conflicts of interest, and good stewardship of research funds - all of these contribute to ensuring that the scientific enterprise validates and self-corrects and that the field advances proficiently by building on foundations of true knowledge.

### **The interpersonal in research**

However, the interpersonal dimension of doing research cannot be neglected, because nowadays research in many fields is not done solo. Often, especially in the sciences, a team of colleagues or supervisors with students collaborate in investigations that uncover new knowledge or applications which result in inventions. It is in that arena where I feel that virtues are particularly challenged: as Prof. Herdt noted, personal relationships, communities, and institutions play critical roles in enabling persons to develop and sustain the virtues. Today’s researchers in the sciences face pressures in a “publish or perish” research environment. In pursuit of rankings or other key performance indicators set out by meta-institutions, the university administration passes on these pressures to professors and research supervisors to generate data and papers, exacerbating an already highly charged and competitive atmosphere for retention or promotion.

## **Supervisor-student relationships**

The research supervisor-research student relationship in the sciences functions as a mentor-mentee, master-apprenticeship model. It includes but also goes beyond a supervisor's teaching skills. The challenges of this may be further exacerbated in the East, where the Confucian tradition of the teacher-master, and the reverence for seniority, further empower the Supervisor, so that students tend to accept rather than challenge the given arrangements. Under the pressure to deliver on the part of the researcher, virtues may stand in the way of efficiency and productivity, and the relationship can devolve into a utilitarian one. The Supervisor may overlook how the apprenticeship was originally a relationship for teaching and mentorship, so that in the extreme, it can become a form of exploitation through exerting the power to give or withhold resources, in service of the Supervisor's agenda. An example:

To make research progress, Dr. XXX forced his group members to work 15 hours every day in the laboratory from 8 am to 11 pm, even on public holidays. One student made a three-day leave application to Dr. XXX to be away due to a family emergency. When the student returned from this three-day leave, he was asked to hand over his project, on which he had already spent a whole year of hard work, to another student in the group, and he was forced to start a new project all over again. When the first work was published, his name was purposely deleted from the list of authors, even though his one year of results were in the paper. Prof. XXX told his group members that this was a punishment of the student for not following his lab rules.

Whereas the vices of dishonesty with respect to data cause a researcher to become discredited and lose his/her reputation in the scientific community, dysfunctional supervisory mentor-mentee relationships can become normalized and justified in the name of working hard and doing whatever it takes. This is reinforced when the institutions celebrate and promote individuals solely and entirely on their research accomplishments and productivity but ignore whether the culture of the research group is a healthy one or not.

## **Enabling students to flourish: Supervision as service**

Obviously, there are no accomplishments without hard work, and a good research team does excellent work and takes work seriously: ensuring that the project progresses and everyone does all that their roles demand is part of good stewardship of public research funding. However, research leaders should reflect on the teaching of "doing unto others as you would have them do unto you"—would the supervisor have flourished if he/she had been a student in the culture or environment he/she has established for his/her own team? Would it be too radical to see the supervisor's role as one of service to his/her students? As the one who has something to give and not the other way around?—to emulate Christ who himself came to serve and not to be served? Can we see our roles as a service to ensure the students' flourishing and learning, to put them forward for opportunities, to develop them as researchers, rather than the students

serving the supervisor's interests? Could we see our legacy as not only being that body of research which we have produced, or see our standing not solely as a function of our research achievements, but even more so, in the many students who have benefited from our mentorship and tutelage to go on to enriched personal and professional lives, actualizing their ideas of success rather than ours? Do we model merely our craft and knowledge, but neglect what kind of people we are to them? As mentors, we have the power to multiply virtues or vices, because our students could become supervisors one day and emulate our ways.

Personal relationships, communities and institutions all play a critical role in enabling persons to develop and sustain the virtues. Virtues are cultivated in the context of communities that lift up exemplars, pass down inspiring narratives of life lived well amidst circumstances both supportive and challenging.... Jennifer Herdt

## **Courage**

Research leaders and professors need courage to stand against certain prevailing pressures, courage to insist that research publications are not an end but a means, and to consistently pursue nurturing, compassionate and generous mentorships. This will enable students to flourish, promote relationships which are often bypassed in efforts to produce more efficient research teams, and create a research group culture that is productive, edifying and kind.

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